

Amendments in the claims:

1. (Currently amended) A method of printing an electronic component comprising:
providing a surface;
providing a redox couple comprising an oxidizer and a reducer;
solubilizing at least one of the oxidizer and the reducer in a first solution that contains no more than 5% particulates by weight;
applying the first solution to the surface in a desired pattern rather than coating the entire surface with the first solution, to create a first layer, wherein said desired pattern is defined by a printing process that makes no use of a mask;
initiating a redox reaction in the first layer; and
completing the component by adding at least one additional layer.
2. (Canceled)
3. (Canceled)
4. (Original) The method of claim 1 wherein the component comprises a power source.
5. (Original) The method of claim 1 wherein the component comprises a battery.

6. (Currently amended) The method of claim 1 wherein at least one of the oxidizer and the reducer comprises a metal containing compound, the metal selected from the ~~list~~ group consisting of copper, iron, cobalt, tin, gold, silver, palladium, platinum, nickel, lithium, aluminum, and titanium.

7. (Canceled)

8. (Currently amended) The method of claim 1 wherein the redox couple includes a material selected from the ~~list~~ group consisting of formate, nitrate, alkoxide nitrate, alkoxide perchlorate, acetate nitrate, and acrylate nitrate.

9. (Currently amended) The method of claim 1 wherein said ~~the~~ ~~step of~~ applying comprises depositing the first solution using at least one of a stamp and a jet.

10. (Currently amended) The method of claim 1 wherein at least one of the first layer or the at least ~~of~~ one additional layers comprises an electrolyte.

11. (Currently amended) The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a ~~pure~~ metal.

12. (Original) The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a mixed metal oxide.

13. (Currently amended) The method of claim 1 wherein said initiating the redox reaction comprising radiating the applied solution with microwave radiation.

14. (Currently amended) The method of claim 1 wherein said completing the component comprises:
providing a second redox couple comprising a second oxidizer and a second reducer;
solubilizing at least one of the second oxidizer and the second reducer in a second solution;
depositing the second solution onto the first layer, and
initiating a redox reaction in the second solution.

15. (Currently amended) The method of claim 1 wherein the component comprises a battery, and said applying comprises depositing the first solution using at least one of a stamp, ~~a rotating plate,~~ and a jet.

16. (Previously presented) The method of claim 1 further comprising:
providing a second redox couple comprising a second oxidizer and a second reducer;

solubilizing at least one of the second oxidizer and the second reducer in a second solution;

depositing successive layers of the second solution, and initiating a redox reaction in the successive layers to produce a solid conductor that electrically couples at least two of the layers of the component that are mutually non-adjacent.

17. (Canceled)

18. (Canceled)

19. (Currently amended) A method of printing an electronic circuit comprising:

printing a plurality of components according to ~~one of the methods~~ method of claim 1; and

applying the first solution to the surface in a desired pattern that connects at least two of the plurality of components, and initiating the redox reaction in the desired pattern to produce a conductive trace between the at least two components.

20. (Currently amended) The method of claim ~~±~~ 19 wherein the pattern has a lateral resolution below 10 μm .

21. (Currently amended) The method of claim ~~±~~ 19 wherein the circuit includes a transistor, a power source, and a capacitor.

22. (Canceled)

23. (Previously presented) The method of claim 1 wherein the reducer and the oxidizer are each applied to the surface in the desired pattern.

24. (Currently amended) A method of printing an electronic component comprising:

providing a surface;

providing a redox couple comprising an oxidizer and a reducer;

solubilizing at least one of the oxidizer and the reducer in a first solution that contains no more than 5% particulates by weight;

applying the first solution to the surface in a pattern of a trace to create a first layer, later, wherein said pattern of a trace is defined by a printing process that makes no use of a mask;

applying energy to the entire surface;

initiating a redox reaction in the first layer; and

completing the component by adding at least one additional layer.

1) Comments on amendments to the claims

Claims 1 and 24 are currently amended to more clearly define and claim the present invention. In particular, defining a pattern with a "printing process that makes no use of a mask" is now recited in these claims. Support for this amendment is present in the application, e.g., in the discussion of step 5 on Fig. 1 in the detailed description, under the heading "Applying the Solution to the Surface (5)". In addition, minor informalities in the claims that have been noticed at this time are corrected by amendment. No new matter is introduced.

2) Information disclosure statement

An information disclosure statement is filed herewith, citing references brought to Applicant's attention in the course of foreign prosecution of a related patent application. Consideration of these references is respectfully requested.

3) Office action paragraph 3; Claim rejections under 35 USC 112

Claims 2, 3, 7, 11, and 24 stand rejected under 35 USC 112 second paragraph as being indefinite.

Claims 2, 3, and 7 are canceled.

In claim 11, "pure" is deleted.

In claim 24, "later" is amended to "layer".

4) Office action paragraph 4; Claim rejections under 35 USC 112

Claim 15 stands rejected under 35 USC 112 first paragraph as being non-enabled.

In claim 15, "a rotating plate" is deleted.

5) Office action paragraph 6; Claim rejections under 35 USC 102

Claims 1-4, 6-8, 10-11, 14, and 22-23 stand rejected under 35 USC 102(b) as anticipated by US 4,775,556, hereinafter Krause.

Claim 1 is currently amended to specifically exclude the use of masking to define the desired pattern. The teaching of Krause is limited to masking. Accordingly, Applicant respectfully requests withdrawal of this rejection of claim 1 in view of this amendment.

Claims 2-4, 6-8, 10-11, 14, and 22-23 depend from claim 1, so the above amendment of claim 1 is also responsive to this rejection of these claims.

6) Office action paragraph 7; Claim rejections under 35 USC 102

Claims 1-3, 6-8, 10-11, 14, 16 and 22-24 stand rejected under 35 USC 102(b) as anticipated by US 4,576,689, hereinafter Makkaev.

Claim 1 is currently amended to specifically exclude the use of masking to define the desired pattern. The teaching of Makkaev is limited to masking. Accordingly, Applicant respectfully requests withdrawal of this rejection of claim 1 in view of this amendment.

Claims 2-3, 6-8, 10-11, 14, 16, and 22-23 depend from claim 1, so the above amendment of claim 1 is also responsive to this rejection of these claims.

Claim 24 is currently amended to specifically exclude the use of masking to define the desired pattern. The teaching of Makkaev is limited to masking. Accordingly, Applicant respectfully requests withdrawal of this rejection of claim 24 in view of this amendment.

7) Office action paragraph 8; Claim rejections under 35 USC 102

Claims 1, 6-7, 10-11, 14, and 22-24 stand rejected under 35 USC 102(e) as anticipated by US 5,756,146, hereinafter Lee.

Claim 1 is currently amended to specifically exclude the use of masking to define the desired pattern. The teaching of Lee is limited to masking. Accordingly, Applicant respectfully requests withdrawal of this rejection of claim 1 in view of this amendment.

Claims 6-7, 10-11, 14, 16, and 22-23 depend from claim 1, so the above amendment of claim 1 is also responsive to this rejection of these claims.

Claim 24 is currently amended to specifically exclude the use of masking to define the desired pattern. The teaching of Lee is limited to masking. Accordingly, Applicant respectfully requests withdrawal of this rejection of claim 24 in view of this amendment.

8) Office action paragraph 9; Claim rejections under 35 USC 103

Claims 19-21 stand rejected under 35 USC 103(a) over Krause or Makkaev or Lee.

Claims 19-21 depend from claim 1. Accordingly, the above amendment of claim 1 to distinguish it from Krause, and from Makkaev, and from Lee is also responsive to this rejection of claims 19-21.

9) Office action paragraph 10; Claim rejections under 35 USC 103

Claim 13 stands rejected under 35 USC 103(a) over Makkaev in view of US 5,116,582, hereinafter Cooper.

Claim 13 depends from claim 1. Accordingly, the above amendment of claim 1 to distinguish it from Makkaev is also responsive to this rejection of claim 13.

10) Office action paragraph 12; Double patenting

Claims 1-3, 6-11, 16, 19-20, and 22-24 stand rejected for obviousness-type double patenting over claims 1-5, 7, 9-12, 14, 16, 19-20, 22-26, and 28 of US 5,980,998.

US 5,980,998 and the present invention were commonly owned at the time the present invention was made, and are presently commonly owned. Therefore, a terminal disclaimer is filed herewith in order to overcome this double patenting rejection.

11) Office action paragraph 13; Allowable subject matter

Claims 5 and 12 are indicated as allowable if rewritten in independent form.

Applicant appreciates the indication of allowable subject matter.